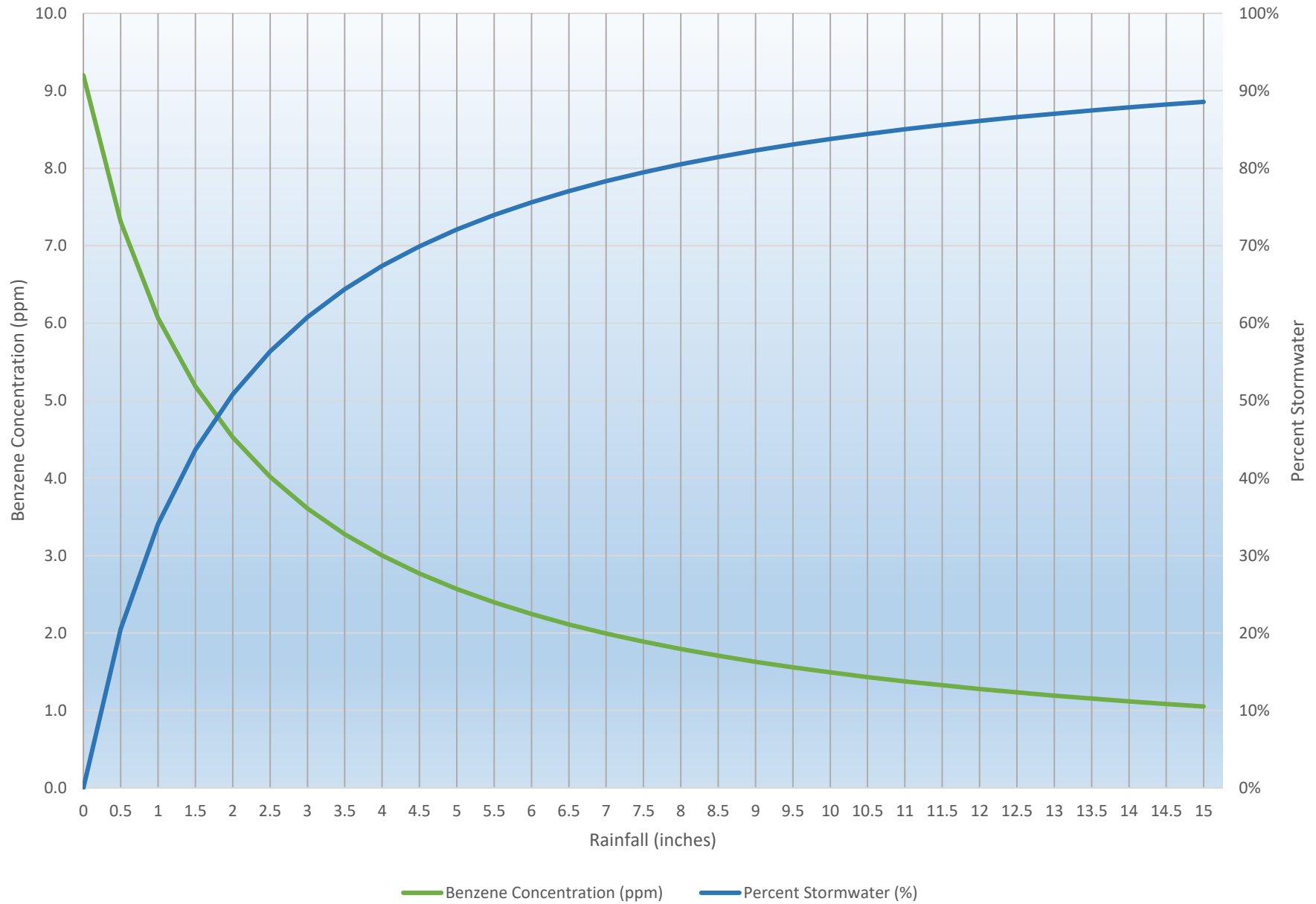


By-Pass Event Flow Characterization



Benzene Concentration Chart

Rainfall	Stormwater (Gallons)	Flushing Liquor (Gallons)	Percent Stormwater (%)	Percent Flushing Liquor (%)	Benzene Concentration (ppm)
0	-	85,441	0%	100%	9.20
0.5	22,067	85,441	21%	79%	7.31
1	44,134	85,441	34%	66%	6.07
1.5	66,201	85,441	44%	56%	5.18
2	88,268	85,441	51%	49%	4.53
2.5	110,335	85,441	56%	44%	4.02
3	132,402	85,441	61%	39%	3.61
3.5	154,469	85,441	64%	36%	3.28
4	176,536	85,441	67%	33%	3.00
4.5	198,603	85,441	70%	30%	2.77
5	220,670	85,441	72%	28%	2.57
5.5	242,737	85,441	74%	26%	2.40
6	264,805	85,441	76%	24%	2.24
6.5	286,872	85,441	77%	23%	2.11
7	308,939	85,441	78%	22%	1.99
7.5	331,006	85,441	79%	21%	1.89
8	353,073	85,441	81%	19%	1.79
8.5	375,140	85,441	81%	19%	1.71
9	397,207	85,441	82%	18%	1.63
9.5	419,274	85,441	83%	17%	1.56
10	441,341	85,441	84%	16%	1.49
10.5	463,408	85,441	84%	16%	1.43
11	485,475	85,441	85%	15%	1.38
11.5	507,542	85,441	86%	14%	1.33
12	529,609	85,441	86%	14%	1.28
12.5	551,676	85,441	87%	13%	1.23
13	573,743	85,441	87%	13%	1.19
13.5	595,810	85,441	87%	13%	1.15
14	617,877	85,441	88%	12%	1.12
14.5	639,944	85,441	88%	12%	1.08
15	662,011	85,441	89%	11%	1.05

BP Stormwater Areas

Area	Square Footage	Gallons from Rain
By-Products Plant (Google Earth)	61,437	38,298
Liquor Tanks Containment	Included above	Included above
Tar Tanks Containment	Included above	Included above
Wash Oil Tank Farm Containment	7,148	4,456
Wash Oil Caustic Tanks	Included above	Included above
Light Oil Loading	Included above	Included above
Light Oil Storage	Included above	Included above
Flare Containment	828	516
Emer. Diesel Tank Containment	336	209
Tar Separator Containment	1,335	832

Assumed Rainfall (inches)

1

Total Area (ft²)

71,084

**Total Rainfall
(Gallons)**

44,312

Liquor Storage or Processes

Tanks or Vessels	Deminsions	Gallons
West Decanter	4'9" Liquor Height x 39' Length x 14' Width	19,400
East Decanter	4'9" Liquor Height x 39' Length x 14' Width	19,400
Flushing Liquor Circulation Tank	30' Diamter x 6'8" Liquor Height	35,230
Primary Cooler Sump	11'5" Length x 6' Width x 4' Depth of Liquor	2,050
Total		76,080

Flushing Liquor Feed Piping

	Piping Description	Diameter (in)	Length (ft)	Area (sq ft)	Gallons
Dec to FL Tank	Decanters to Flushing Liq. Cir. Tank	20	10	2.182	163
Off Flushing Liq. Cir. Tank	Outlet of Flushing Liquor Cir Tank through pumps	12	60	0.785	353
	Flushing Liquor Pumps to 1st T	16	100	1.396	1,044
Wilputte Feed	1st T to Wilputte T	10	50	0.545	204
	Wilputte T to 1A Battery	8	280	0.349	731
	Leg to 2A Battery	10	100	0.545	408
	Spray Header above Collector Main	6	320	0.196	470
Beckers Feed	1st T to 1st Reduction	14	240	1.069	1,919
	1st Reduction to 2nd Reduction	10	460	0.545	1,877
	2nd Reduction to 6 Battery	8	480	0.349	1,253
	Leg to 5 Battery	6	80	0.196	118
	Spray Header above Collector Main	6	230	0.196	338
Collector Mains	Wilputte Collector Main	Not Full Line	320	0.007	16
	Beckers Collector Main	Not Full Line	230	0.007	12
Return Lines	Return from Wilputte to joining T	Not Full Line	360	0.013	36
	Return from Beckers to joining T	Not Full Line	1180	0.013	118
	<i>Primary Cooler Sump to tie-in</i>	6	80	0.196	118
	Joining T to Primary Cooler Sump tie-in	Not Full Line	110	0.013	11
	Primary Cooler Sump tie-in to Decanters	Not Full Line	110	0.210	173
				Total	9,361